

A method of designing a telecommunications network, the method comprising the steps of A) for all working demand flows required to be routed in the telecommunications network, finding an initial topology of spans between nodes in the telecommunications network that is sufficient for routing all working demand flows, while attempting to minimize the cost of providing the spans; B) given the initial topology of spans identified in step A, finding a set of additional spans that ensures restorability of working demand flows that are required to be restored in case of failure of any span in the initial topology of spans, while attempting to minimize the cost of providing additional spans; and C) starting with the initial topology of spans and the additional spans identified in step B, finding a final topology of spans between nodes in the telecommunications network that attempts to minimize the total cost of the final topology of spans, while routing all working demand flows and ensuring restorability of working demand flows required to be restored in case of failure of any span in the final topology of spans. A network so designed may be implemented in whole or in part.